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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : BENAZZI et al

Serial No. : 09/909,805

Group Art Unit : 1764

Filed: July 23, 2001

Examiner: Walter D. Griffin

For : PROCESS FOR IMPROVING THE POUR POINT OF FEEDS  
CONTAINING PARAFFINS USING A CATALYST BASED ON A BRIDGED  
DIOCTAHEDRAL 2:1 PHYLLOSILICATE

**DECLARATION UNDER 37 C.F.R. § 1.132**

**Honorable Commissioner  
of Patents and Trademarks  
Washington, D.C. 20231**

Sir :

I, Germain Martino, duly warned, declare and say as follows:

THAT, I am a French citizen; that I graduated from "Faculté des Sciences de l'Université de Strasbourg" (France) in 1961; that I obtained an Engineer Diploma from "Ecole Nationale Supérieure de Pétrole et des Moteurs" Rueil-Malmaison (France) in 1963; that I was received as a Doctor by "Université de Louvain" (Belgium) in 1965; and that I now reside in 78300 Poissy (France), 80 avenue Fernand-Lefebvre;

THAT, I was hired by "Institut Français du Pétrole" Rueil-Malmaison (France) in their Research Department to research on catalytic agents and catalytic reactions in May 1967; that, from January 1985 to September 1989, I was Manager of the Kinetics and Catalysis Research Division; that, from September 1989 to December 1997, I was Assistant Manager of the whole Refining and Petrochemical Technology Business Unit; and that since then I have been Manager of said Refining and Petrochemical Technology Business Unit.

THAT, I am familiar with phyllosilicates catalysts and hydroconversion processes.

I declare further:

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I have supervised the following examples:

Catalyst C1 was prepared according to examples 1 and 2 of US-6,191,333, which are the same as examples 1 and 2 of the present application.

Catalyst C1 is used for treatment of:

- n-heptane (as in prior art)
- hydrocracking residue described in example 5 of present application in the same conditions, for the purpose of comparisons.

Hydrocracking residue contains 62% n-paraffins, divided in 53% iso-paraffins and 9% n-paraffins. Practically all paraffins contain more than 10 carbon atoms.

Catalyst C1 is, before treatment of the feedstock, calcined at 450°C, under dry air, for 4 hours. Then the catalyst is reduced at 450°C under hydrogen.

2 tests are conducted:

- in test 1, both feedstocks are treated with catalyst C1 in conditions of prior art
- in test 2, both feedstocks are treated with catalyst C1 in conditions of the present invention

#### Test 1

Conditions are close to those of example 6 of US-6,191,333, that is 250°C, 1MPa,  $1\text{h}^{-1}$ ,  $\text{H}_2/\text{n-heptane} = 14$  (ml).

Results on n-heptane are close to those of example 6:

conversion (i.e. converted products) = 75% wt

selectivity is isomerization = 90% wt

selectivity is cracking = 9% wt

#### Results on hydrocracking residue

Catalyst rapidly deactivated and an increase of only few points in viscosity index was obtained.

#### Test 2

Conditions are those of ex. 5 of the present application, that is 275°C, 12 MPa, howly space velocity  $1\text{h}^{-1}$  and 1000 l  $\text{H}_2/\text{l}$  feedstock.

Results on hydrocracking residue are shown in ex.5 of the present application.  
They are :

viscosity index	:	118
pour point	:	-13°C
oil yield	:	68% wt
converted product (370°C-)	:	32% wt

Results on n-heptane :

As pressure increased, conversion reduced strongly to enhance conversion (in order to compare with previous results) temperature was increased of about 18°C up to 268°C.

Selectivity in isomerization is 61% and in cracking 38%.

Conclusions

I declare:

THAT different products are obtained from these feedstocks :

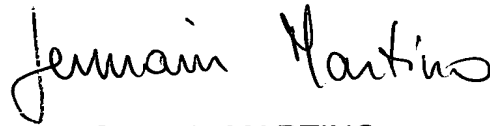
- from n-paraffins up to C10, isomerized paraffins are obtained from n-paraffins which show high octane number index and which are used for blending with gasolines
- from n-paraffins higher than C10, isomerized paraffins are obtained from n-paraffins and iso-paraffins, which show high viscosity index and low pour points and which are used as base oils.

THAT it is not possible to measure a viscosity index or a pour point for paraffins C1-C10, since they are non viscous liquids .

THAT it is clear from examples that conditions of treatment of both feedstocks are different for obtaining the suitable products.

THAT these processes are quite different.

The undersigned declares further that all statements are made herein of his own knowledge are true and that all statements made on information and belief are believed to be true ; and further that these statements are made with the knowledge that willful false statements and the like so made were punishable by fine or imprisonment, or both under Section 1001 Title 18 of United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

A handwritten signature in black ink, reading "Germain Martino". The signature is written in a cursive style with a large, stylized 'G' and 'M'.

Rueil, October 27, 2003

Germain MARTINO